

# IEC 61850 Certificate Level A<sup>1</sup>

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No. 20-065264-01

Issued to:  
Hyosung Heavy Industries Co., LTD.  
119, Mapo-daero (Gongdeok-dong),  
Mapo-gu, Seoul, Republic of Korea,  
04144

For the server product:  
Converter Control & Protection Controller  
HAMCS H1-CCP  
Software Version 1.0  
OS : Ubuntu Linux 18.04 LTS  
S/N : HAMCS H1-CCP-20-001

Issued by: **Korea Testing Laboratory**

**The server product has not been shown to be non-conforming to:  
IEC 61850 First Edition Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1  
Communication networks and systems in substations**

The conformance test has been performed according to IEC 61850-10, the UCA International Users Group Server Device Test Procedures version 3.3, the product's protocol, model and technical issue implementation conformance statements: "Hyosung\_HAMCS H1-CCP\_PICS\_v1", "Hyosung\_HAMCS H1-CCP\_MICS\_v1", "Hyosung\_HAMCS H1-CCP\_TICS\_v1" and the extra information for testing: "Hyosung\_HAMCS H1-CCP\_PIXIT\_v1".

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

1	Basic Exchange (24/25)	9b	GOOSE Subscribe (11/11)
2	Data Sets (3/6)	12a	Direct Control (6/11)
2+	Data Set Definition (24/24)	12b	SBO Control (9/14)
4	Setting Group Selection (3/3)	12c	Enhanced Direct Control (8/13)
4+	Setting Group Definition (7/7)	12d	Enhanced SBO Control (13/19)
5	Unbuffered Reporting (18/18)	13	Time Sync (4/5)
6	Buffered Reporting (25/27)	14	File Transfer (7/7)
9a	GOOSE Publish (10/12)		

This Certificate includes a summary of the test results as carried out at KTL in Republic of Korea with IEC 61850 KTL Testing Tool with test suite IEC 61850 Server Conformance Test V.1.0 and IEC 61850 KTL Trace Manager V.1.0. This document has been issued for information purposes only, and the original paper copy of the KTL report: No. TR-20-065264-01-1 and TR-20-065264-01-2 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KTL by Hyosung Heavy Industries Co., LTD. The manufacturer's production process has not been assessed. This certificate does not imply that KTL has approved any product other than the specimen tested.

Seoul, Jan. 20, 2021

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1 Level A - Independent Test lab with accredited ISO/IEC 17025 Quality System

Applicable Test Procedures from the UCA International Users Group Server Device Test Procedures version 3.3.

Conformance Block	Mandatory	Conditional
1: Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN4, AssN5, Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	AssN3, AssN6, Srv6, Srv7, Srv8, Srv9, Srv10, SrvN1e, SrvN1f, SrvN2, SrvN3
2: Data Sets	Dset1, Dset10a, DsetN1ae	
2+: Data Set Definition	Dset2, Dset3, Dset4, Dset5, Dset6, Dset7, Dset8, Dset9, DsetN1cd, DsetN2, DsetN3, DsetN4, DsetN5, DsetN6, DsetN7, DsetN8, DsetN9, DsetN10, DsetN11, DsetN12, DsetN13, DsetN14	DsetN15a, DsetN15b
4: Setting Group Selection	Sg1, Sg3, SgN1a	
4+: Setting Group Definition	Sg2, Sg4, SgN1b, SgN2, SgN3, SgN4, SgN5	
5: Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, Rp9, RpN1, RpN2, RpN3, RpN4, RpN8	Rp5, Rp6, Rp7, Rp8, Rp10, Rp11, Rp12, RpN5
6: Buffered Reporting	Br1, Br2, Br3, Br4, Br9, Br20, Br21, Br22, Br25, Br26, Br27, Br28, BrN1, BrN2, BrN3, BrN4, BrN5, BrN8	Br5, Br6, Br7, Br8, Br10, Br11, Br12
9a: GOOSE Publish	Gop2, Gop3, Gop4, Gop9, Gop10a	Gop1, Gop6, Gop7, Gop10b, GopN1
9b: GOOSE Subscribe	Gos1a, Gos2, Gos3, GosN1, GosN2, GosN3, GosN4, GosN5, GosN6	Gos1b, Gos4
12a: Direct Control	CtlN3a, DOns1	Ctl2a, Ctl7a, CtlN11a, DOns3
12b: SBO Control	CtlN1b, CtlN2b, CtlN3b, CtlN4b, SBOs2	Ctl2b, Ctl3b, Ctl7b, CtlN11b
12c: Enhanced Direct Control	CtlN3c, DOes2, DOes5	Ctl2c, Ctl7c, CtlN6c, CtlN8c, CtlN11c
12d: Enhanced SBO Control	CtlN1d, CtlN2d, CtlN3d, CtlN4d, CtlN9d, SBOes1, SBOes2, SBOes3	Ctl2d, Ctl3d, Ctl7d, CtlN6d, CtlN11d
13: Time Sync	Tm1, Tm2	TmN1, TmN2
14: File Transfer	Ft1, Ft2ab, Ft4, FtN1ab	Ft2c, Ft3, FtN1c